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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,400	03/01/2002	Anthony C. Bonora	ASYS8196US0 MEM/SDS	6253

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EXAMINER

BRAHAN, THOMAS J

ART UNIT

PAPER NUMBER

3652

DATE MAILED: 07/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/087,400

Applicant(s)

BONORA ET AL.

Examiner

Thomas J. Brahan

Art Unit

3652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-5. 6) ☐ Other:

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which applicant regards as his invention.
2. Claims 7 and 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
  - a. In claim 7, it is unclear as to how the applicant is considering all of the elements of the group as being part of the radial drive. These parts are associated with the overall apparatus, but not specifically with the radial drive.
  - b. In claim 14, line 5, the term "said radial drive" lacks antecedent basis within the claims.
  - c. Claim 14, at lines 5 and 6, recites a "means for moving the radial drive along an x and z and for rotating the linear drive about a theta axis". This is inaccurate as the apparatus has three separate means for these motions, not one. Claim 15, in lines 6 and 7 has a similar recitation with a means for moving the housing in a z direction and about a theta axis, when the device has two means, one for each movement. Lines 10 and 11 of claim 16 have a similar inaccurate recitation.
  - d. In the penultimate line of claim 15 the term "the wafer support" lacks antecedent basis within the claims. This could be a typographical error as the phrase could read "a wafer supported".
3. The penultimate line of claim 15 has a typographical error as the term "does" should be "do". In the last line of claim 15 the term "ends" should be "end". In claim 17, at line 13, the phrase "and housing" should be "said housing".
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:  
A person shall be entitled to a patent unless --  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:  
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.  
  
Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.  
  
This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103, the examiner presumes that the subject matter of the various claims was commonly owned

at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103.

6. Claims 15 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Yaegashi et al. Yaegashi et al shows a system for handling semiconductor wafers within a confined workspace, comprising:

- means (at 77; see column 10, lines 4-6) for providing linear motion;

- a housing (77) enclosing the means for providing linear motion;

- an end effector (78) mounted to the means for providing linear motion;

- means (84) for moving the housing linearly in a z direction, and means (84) for rotating the housing about a theta axis; and

- a device (96) for reducing air pressure inside the housing such that articles created by the housing do not contaminate a wafer supported by the end effector.

The housing (77) is supported by a carriage (73) positioned to the side of the column housing the z direction drive, as recited in claim 18.

7. Claims 1-7, 9-12, and 14 (as understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaegashi et al in view of Okamura et al. Yaegashi et al shows an apparatus for moving semiconductor wafers comprising:

- a rotational drive (74) for rotating about a theta axis;

- a z axis linear drive (82, 84) extending from and mounted to the rotational drive having a linear motion along a z axis, the z axis being offset from the and substantially parallel to the theta axis; and

- a radial drive (at 77; see column 10, lines 4-6) extending from and mounted to the z axis linear drive, having an end effector.


The wafer handling apparatus of Yaegashi et al varies from the claims as it lacks a linear drive for moving it along an x axis. Figure 2 of Okamura et al shows a similar wafer handling apparatus (16) which has a ball screw mechanism to move it along a linear track (31), see column 4, lines 29-33. It would have been obvious to one of ordinary skill in the art to modify the wafer handling apparatus of Yaegashi et al by mounting it on a linear drive to move it along an x axis, as to have it moving linearly between a pair of rows of processing units, to have access to more processing units, as taught by Okamura et al. The end effector travels along the radial axis, as recited in claim 2, and rotates around the theta axis, as recited in claim 3. Yaegashi et al has air flow units (95a, 96) mounted to the rotational drive for reducing pressure by the z axis linear drive, as recited in claims 4, 5, and 15. The radial drive is inherently removable, as recited in claim 6. The apparatus has wafer processing modules and environmental controls, as claim 7 is best understood. The wafer supported by the end effector can trace a circular area, as recited in claims 9 and 10. The z axis linear drive rotates through a clearance similar to the wafer during rotation, as recited in claim 12. The wafer end of the linear drive has a larger circumference than its rear end, as recited in claim 14.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yaegashi et al in view of Okamura et al, as applied above to claim 1, and further in view of Solomon et al. Yaegashi et al, as modified, shows the basic claimed apparatus for moving semiconductor wafers, but varies from claim 8 by not having a filter for its airflow unit. Solomon et al shows a similar wafer apparatus with airflow units with filters (170, 172). It would have been obvious to one of ordinary skill in the art to modify the airflow units of Yaegashi et al by providing them with filters, to remove particulates from the airflow, as taught by Solomon et al.

9. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yaegashi et al in view of Okamura et al, as applied above to claim 1, and further in view of Hofmeister. Yaegashi et al, as modified, shows the basic claimed apparatus for moving semiconductor wafers, but varies from claim 13 by not having at least one component from a group of common wafer handling devices. Hofmeister shows a similar wafer apparatus with an end effector with an edge detector (50) and an aligner (44). It would have been obvious to one of ordinary skill in the art to modify the wafer handling apparatus of Yaegashi et al by providing its end effector with an edge detector and an aligner for repositioning the wafer during conveying, as taught by Hofmeister.

10. Claims 16 and 17 (as understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaegashi et al in view of Sundar et al. Yaegashi et al shows the basic claimed apparatus for moving semiconductor wafers having first and second end effectors with linear drives in a housing (77), a z axis linear drive (82, 84) and a theta axis rotational drive (74). It varies from claim 17 by not having means to rotate the wafer on the effectors. Sundar et al shows a similar wafer apparatus with an end effector with a rotating gripper (446) for repositioning the wafer. It would have been obvious to one of ordinary skill in the art to modify the wafer handling apparatus of Yaegashi et al by providing its end effector with a rotating gripper, as to reposition the wafer during conveying, as taught by Sundar et al.

11. Any inquiry concerning this communication should be directed to Thomas J. Brahan at telephone number (703) 380-2568. The examiner can normally be reached on Mondays and Wednesdays through Fridays from 9:30 to 6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis, can be reached on (703) 308-3248. The fax phone number for the organization where this application is assigned is (703) 305-7687. Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703) 305-3900.

  
Thomas J. Brahan  
Primary Examiner  
Art Unit 3652

7/14/03